

Please cancel claim 5, without prejudice.

1. (Twice Amended) A semiconductor device connecting structure for connecting a semiconductor device onto a substrate, characterized by comprising;

a bonding layer interposed between said semiconductor device and said substrate to accomplish adhesion therebetween, which includes a bonding material for adhering said semiconductor device onto said substrate and a plurality of vacant spaces formed within said bonding material,

wherein a percentage of said plurality of vacant spaces within said bonding material is 5% to 70%.

3. (Thrice Amended) A semiconductor device connecting structure as defined in claim 1, characterized in that said plurality of vacant spaces are placed closely to each other.

9. (Twice Amended) A semiconductor device connecting method for connecting a semiconductor device onto a substrate, characterized by comprising the steps of:

interposing a bonding layer between said semiconductor device and said substrate to accomplish adhesion therebetween;

joining said substrate and said semiconductor device to each other by pressing a pressurizing head against said semiconductor device to pressurize said bonding layer to a pressure in a range of 12 kgf to 20 kgf;

heating said pressurizing head to a temperature in a range of 260°C to 360°C in order to heat said bonding layer;

forming a plurality of vacant spaces within said bonding layer by decreasing a viscosity of a bonding material of said bonding layer to cause said bonding layer to flow outward from said semiconductor device; and

controlling the formation of said plurality of vacant spaces to provide a percentage of said plurality of vacant spaces within said bonding material in a range of 5% to 70%.

11. (Twice Amended) A liquid crystal display unit comprising:

a pair of liquid crystal holding substrates disposed in an opposed relation to each other with liquid crystal therebetween;

a semiconductor device connected onto at least one of said liquid crystal holding substrate; and

a bonding layer interposed between said liquid crystal holding substrate and said semiconductor device to accomplish adhesion therebetween, characterized in that

said bonding layer includes a bonding material for adhering said semiconductor device onto said liquid crystal holding substrate and a plurality of vacant spaces formed within said bonding material.

13. (Thrice Amended) A liquid crystal display unit as defined in claim 11, characterized in that said plurality of vacant spaces are placed closely to each other.

15. (Thrice Amended) A liquid crystal display unit as defined in claim 11, characterized in that the percentage of said plurality of vacant spaces within said bonding material is 5% to 70%.

16. (Thrice Amended) A liquid crystal display unit as defined in claim 15, characterized in that the percentage of said plurality of vacant spaces within said bonding material is 10% to 30%.

17. (Twice Amended) An electronic apparatus having a plurality of semiconductor driving output terminals and a liquid crystal display unit connected to said semiconductor driving output terminals, characterized in that said liquid crystal display unit includes:

a pair of liquid crystal holding substrates disposed in an opposed relation to each other with liquid crystal therebetween;

a semiconductor device connected onto at least one of said liquid crystal holding substrates; and

a bonding layer interposed between said liquid crystal holding substrate and said semiconductor device to accomplish adhesion therebetween,

wherein said bonding layer includes a bonding material for adhering said semiconductor device onto said liquid crystal holding substrate and a plurality of vacant spaces formed within said bonding material.

18. (Amended) A semiconductor device connecting structure comprising:

a substrate;  
a semiconductor device connected to the substrate; and  
a bonding layer interposed between the substrate and the semiconductor device,  
the bonding layer including a bonding material adhering the semiconductor device to the  
substrate, a plurality of conductive particles dispersed in the bonding material, and a  
plurality of vacant spaces formed within said bonding material,  
wherein the semiconductor device is adhered to the substrate by the bonding  
material at a substantially plane center portion of the semiconductor device.

19. (Amended) A liquid crystal display comprising:

a substrate;  
a liquid crystal on the substrate;  
a plurality of electrodes on the substrate;  
a semiconductor device having a plurality of bumps, the semiconductor device  
being mounted on the substrate, each bump being connected to one of said plurality of  
electrodes;  
a bonding layer interposed between the substrate and the semiconductor device,  
the bonding layer including a bonding material adhering the semiconductor device to the  
substrate, and a plurality of vacant spaces formed within said bonding material,  
wherein the plurality of vacant spaces are at least formed in an area  
encompassed by the plurality of electrodes.

20. (Amended) A liquid crystal display comprising:

a substrate;

a liquid crystal on the substrate;

a semiconductor device mounted on the substrate, the semiconductor device including a periphery defining a mounting area;

a bonding layer interposed between the substrate and the semiconductor device, the bonding layer including a bonding material adhering the semiconductor device to the substrate, and a plurality of vacant spaces formed within said bonding material,

wherein the plurality of vacant spaces are at least formed in the mounting area.

21. (Amended) A liquid crystal display according to claim 20, wherein a region occupied by the bonding layer is larger than the mounting area.

22. (Amended) A liquid crystal display comprising:

a substrate;

a liquid crystal on the substrate;

a plurality of electrodes on the substrate;

a semiconductor device having at least two edges opposing each other, and a plurality of bumps aligned along at least said two edges,

the semiconductor device being mounted on the substrate, each bump being connected to an electrode;

a bonding layer interposed between the substrate and the semiconductor device, the bonding layer including a bonding material adhering the semiconductor device to the substrate, and a plurality of vacant spaces formed within said bonding material,

wherein the vacant spaces are at least formed in an area bordered by the electrodes.

23. (Amended) A liquid crystal display comprising:  
a first substrate;  
a second substrate including an overlapping area overlapping the first substrate;  
a plurality of electrodes formed on the first substrate, each of the plurality of electrodes at least extending toward the overlapping area;  
a semiconductor device having a plurality of bumps, the semiconductor device being mounted on the substrate, each bump being connected to one of the plurality of electrodes;  
a bonding layer interposed between the substrate and the semiconductor device, the bonding layer including a bonding material adhering the semiconductor device to the substrate, and a plurality of vacant spaces formed within said bonding material,  
wherein the plurality of vacant spaces are at least formed in an area encompassed by the bumps.

24. (Amended) A semiconductor device connecting structure comprising:  
a substrate;  
a semiconductor device connected to the substrate; and  
a bonding layer including a bonding material that joins the semiconductor to the substrate and a plurality of spaces disposed in the bonding material, the bonding layer being disposed between the substrate and the semiconductor device,